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February 17, 1859.

Sir BENJAMIN C. BRODIE, Bart., President, in the Chair.

The Lord Bishop of London and the Lord Bishop of Ripon were admitted into the Society.

The following communications were read :—

- I. "Statement of Facts relating to the Discovery of the Composition of Water by the Hon. H. CAVENDISH." In a Letter from J. J. BENNETT, Esq., F.R.S., to Sir B. C. BRODIE, Bart., P.R.S., dated February 12, 1859. Received February 14, 1859.

Since the death of our late excellent and lamented friend Mr. Robert Brown, several appeals have been made to his executors to publish certain evidence presumed to have been in his possession relating to the much-agitated question of the priority of Cavendish or Watt in the discovery of the composition of water. As the executor to whom Mr. Brown entrusted his papers, and having been for many years honoured with his entire confidence, I feel called upon to respond to these appeals, and I therefore request that you will kindly lay before a Meeting of the Royal Society the following brief statement on the subject.

The date and nature of Cavendish's communication to Priestley have always been considered as essential elements in the determination of the question; and it was the evidence which Mr. Brown possessed in regard to these particulars, which, in his estimation, "placed Cavendish's claims as the discoverer of the composition of water beyond dispute." That evidence, however, was not derived from any unpublished document, but formed part of a section of Deluc's "*Idées sur la Météorologie*," which although especially entitled,—"*Anecdotes relatives à la découverte de l'Eau sous la forme d'Air*,"—appears entirely to have escaped the notice of those

who have advocated Cavendish's claims. It is the more conclusive as coming from Deluc, the "*ami zélé*," as he justly terms himself, of Watt, and who, in relation to this question, believed himself "à portée d'en connoître toutes les circonstances."

The testimony of Deluc is as follows :—

Vers la fin de l'année 1782 j'allai à *Birmingham*, où le Dr. Priestley s'étoit établi depuis quelques années. Il me communiqua alors, que M. Cavendish, d'après une remarque de M. Warltire ; qui avoit toujours trouvé de *l'eau* dans les vases où il avoit brûlé un mélange *d'air inflammable et d'air atmosphérique* ; s'étoit appliqué à découvrir la source de cette eau, et qu'il avoit trouvé, "qu'un mélange *d'air inflammable et d'air déphlogistiqué* en proportion convenable, étant allumé par l'étincelle électrique, se convertissoit tout entier en *eau*." Je fus frappé au plus haut degré de cette découverte\*.

The italics and inverted commas are Deluc's own.

In this communication made by Cavendish to Priestley the theory of the composition of water is clearly indicated. The two gases (known to have been hydrogen and oxygen) were mixed together *in due proportion*, and by means of the electric spark were *entirely converted* into water. Referring to one of Cavendish's experiments, as recorded in his journal, Lord Jeffrey, the most candid and judicious of Watt's advocates, has said: "if he [Cavendish] had even stated in the detail of it, that the airs were *converted*, or *changed*, or *turned* into water, it would probably have been enough to have secured to him the credit of this discovery, as well as to have given the scientific world the benefit of it, in the event of his death, before he could prevail on his modesty to claim it in public.†" The evidence which this distinguished critic and judge regarded as sufficient to establish Cavendish's claim is now afforded, not by a note in his private journal, but by the testimony of the zealous friend of Watt, who states that it was communicated to Priestley towards the end of the year 1782, that is to say, several months before Watt drew his own conclusions from Priestley's bungling repetition of Cavendish's experiments. It was, moreover, published to the world, and suffered to remain uncontradicted, while

\* Idées sur la Météorologie, tome ii. 1787, pp. 206–7.

† Edinburgh Review, vol. lxxxvii. p. 125.

all the parties were alive and in frequent intercourse with the author and with each other.

I have only further, in Mr. Brown's name also, to do an act of justice to the memory of Lavoisier, by relieving it from the obloquy which has rested upon it from his supposed persistence in unjustly claiming priority for himself. The following extract from a Report to the Academy of Sciences on M. Seguin's experiments, dated 28th August 1790, and signed Lavoisier, Brisson, Meusnier, and Laplace, the last named being the reporter, will prove that Lavoisier was not unmindful of the appeal which had been addressed to him by Blagden some years previously, and that he distinctly resigned the priority of discovery to Cavendish :—

“M. Macquer a observé dans son Dictionnaire de Chimie que la combustion des gaz hydrogène et oxygène produit une quantité d'eau sensible ; mais il n'a pas connu toute l'importance de cette observation, qu'il se contenta de présenter, sans en tirer aucune conséquence. M. Cavendish paroît avoir remarqué le premier que l'eau produite dans cette combustion est le résultat de la combinaison des deux gaz, et qu'elle est d'un poids égal au leur. Plusieurs expériences faites en grand et d'une manière très-précise, par MM. Lavoisier, La Place, Monge, Meusnier, et par M. Lefevre de Gineau, ont confirmé cette découverte importante, sur laquelle il ne doit maintenant rester aucun doute.”—*Annales de Chimie*, tome 7, pp. 258–9.

JOHN J. BENNETT.

II. “On the Influence of White Light, of the different Coloured Rays and of Darkness, on the Development, Growth, and Nutrition of Animals.” By HORACE DOBELL, M.D., Licentiate of the Royal College of Physicians, &c. &c. Communicated by JAMES PAGET, Esq. Received January 10, 1859.

(Abstract.)

In this communication the author laid before the Society the particulars of a series of experiments, having for their object to discover what influence is exerted by ordinary light, by the different coloured rays, and by darkness on the development, growth, and nutrition of animals.